



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,651	08/05/2003	Martin Malservisi	GOUD1240	6363
38396	7590	04/16/2009		
JOHN BRUCKNER, P.C. P.O. BOX 490 FLAGSTAFF, AZ 86002			EXAMINER ECHELMEYER, ALIX ELIZABETH	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 04/16/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/634,651

Applicant(s)

MALSERVISI ET AL.

Examiner

Alix Elizabeth Echelmeyer

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 7, 9, 13-18, 21-24, 26 and 40-59 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 and 44-59 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6, 7, 9, 13-18, 21-24, 26 and 40-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed January 15, 2009. Claim 40 has been amended. Claims 1-4 and 44-59 were previously withdrawn. Claims 5, 8, 10-12, 19, 20, 25 and 27-39 were previously cancelled. Claims 6, 7, 9, 13-18, 21-24, 26 and 40-43 are rejected for the reasons given below.
2. Claims 7, 13, 14 and 18 are indicated as "presently amended" in the claims filed January 15, 1009. For the purposes of expediting prosecution, the examiner acknowledges that Applicant has indicated that only claim 40 is presently amended and that the indication of claims 7, 13, 14 and 18 as being amended is a typographical error.

Claim Interpretation

3. Claim 40 has been amended to include the limitation "intertwined zinc metal." The specification provides support for intertwined zinc metal at [0044] ([0052] of the Publication 2004/0115532).

The claim language provides for the battery grade zinc powder being either zinc alloy particles or intertwined zinc metal. The claim does not require that the battery grade zinc powder be intertwined zinc alloy particles, as is suggested in the Remarks filed January 15, 2009 (see page 9, first full paragraph).

The specification does not provide support for intertwined zinc alloy particles. Also, the claim language itself does not require that the zinc alloy particles are intertwined, since the limitation "intertwined" appears only to modify zinc metal. For

these reasons, the claim will not be interpreted as requiring intertwined zinc alloy particles.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9, 13-18 and 40-43 rejected under 35 U.S.C. 103(a) as being unpatentable over Durkot et al. (US 2002/0155352).

Regarding claim 40, Durkot et al. teach an electrochemical cell with an anode comprising zinc alloy particles suspended in a fluid medium (abstract).

The particles have a length to width greater than 5, when the width and length dimension are switched ([0018]). Such a switch is logical, since if the "width" of an object is greater than its "length", then the "width" is essentially the length, and the "length" is the width. Therefore, since $1/0.20$, or one (1) over 20%, is equal to 5, and the aspect ratio is less than 20%, it is also greater than 5 when the "width" and "length" dimensions are switched.

As for the particle size distribution limitation of claim 40, it can be seen in Figure 2 that for certain particles at certain sizes, the log-normal slope is 2.

Regarding claim 41, the fluid medium is gelled potassium hydroxide, or KOH ([0003]).

With regard to claims 42 and 43, it is disclosed in Example 1 of Durkot et al. that the battery consists of polyacrylic acid in 0.53 % by weight of the anode, and that the electrolyte, comprising 2% ZnO and 35% KOH, is 30.94% by weight of the anode. Thus, the gelled electrolyte forms 31.47% by weight of the anode. Of that 31.47% by weight, 98% by weight is the 2% ZnO / 35% KOH, and 2% by weight is the polyacrylic acid.

Regarding the solutions of ZnO and KOH, it has been held that when the difference between a claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in the range or value is minor. Titanium Metals Corp. of Am. v. Banner, 778 F.2d 775, 783, 227 USPQ 773, 779 (Fed. Cir. 1985).

Regarding claim 9, the particles of Durkot et al. may be acicular ([0018]).

As for claims 13-17, the fine zinc alloy particles may have a particle size of 74 μm and the dust zinc alloy particles may have a particle size of 44 μm ([0012], [0013], [0040]). At least 10% of the powder is made up of the dust zinc alloy particles ([0038]). This includes values of 10-19%, or less than 20%.

Regarding claim 18, the "second zinc metal or zinc alloy powder" of the instant claim I considered to be the dust particle, discussed in the previous paragraph. If the dust particles are acicular, as disclosed in Durkot et al., then would have a length along

one axis at least two times the length in another, or would have an aspect ratio of about 2 ([0018]).

Concerning the length to width ratio of claim 40, Durkot et al. fail to explicitly teach the claimed ratio for the particles. Durkot et al. do teach that the surface area of the particles, which is affected by the ratio of the length to width, is result effective ([0041]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the surface area of the particles, since it is recognized that increased surface area results in more area for reaction. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art (MPEP 2144.05 IIB).

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durkot et al. in view of Urry et al. (WO 98/50969).

The teachings of Durkot et al. as discussed above are incorporated herein.

Durkot et al. teach that zinc powder of the anode of a battery, but fail to teach that the powder granules are teardrop in shape.

Urry et al. teach an electrochemical cell having an anode with zinc powder particles (abstract).

Urry et al. further teach that the particles may be teardrop in shape (page 7 line 16).

As for claim 7, the particles may be 254 μm to 1524 μm (page 4 lines 9-10).

Urry et al. further teach that the shape of the particles in the anode can affect the battery characteristics (page 6 lines 5-15).

It would be advantageous to determine the best shape for the zinc particles of the anode of Durkot et al., such as a teardrop shape, since Urry et al. teach that the shape of the particle can affect the characteristics of the battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the best shape for the zinc particles of the anode of Durkot et al., such as a teardrop shape, since Urry et al. teach that the shape of the particle can affect the characteristics of the battery.

7. Claims 21-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durkot et al. in view of Daniel-Ivad et al. (US 7,008,723).

The teachings of Durkot et al. as discussed above are incorporated herein.

Durkot et al. teach the zinc alloy powder in the anode of the battery, but fail to teach that the zinc alloy comprises zinc, bismuth, indium, aluminum or calcium.

Daniel-Ivad et al. teach a zinc alloy for use in the anode of an electrochemical cell (abstract).

The mercury- and lead-free zinc alloys of Daniel-Ivad et al. may include up to 800 ppm indium, up to 500 ppm calcium, up to 500 ppm magnesium, up to 200 ppm bismuth, and up to 200 ppm aluminum (column 4 lines 6-15).

Daniel-Ivad et al. further teach that the zinc alloys mentioned in the previous paragraph may be included in the anode of a battery without the need for environmentally unsafe additives (column 1 lines 54-57, column 3 lines 63-67).

It would be advantageous to use the alloys of Daniel-Ivad et al. in the anode of Durkot et al. since they do not require environmentally unsafe additives, resulting in an environmentally safer battery.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the alloys of Daniel-Ivad et al. in the anode of Durkot et al. since they do not require environmentally unsafe additives, resulting in an environmentally safer battery.

Response to Arguments

8. Applicant's arguments filed January 15, 2009 have been fully considered but they are not persuasive.

Applicant argues that Durkot et al. do not teach intertwined Zinc alloy particles. As discussed above, claim 40 as filed does not require that the zinc alloy particles are intertwined, only that the zinc metal particles are intertwined. This interpretation is supported by the specification.

The examiner holds that the claims are obvious over the cited art.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is (571)272-1101. The examiner can normally be reached on Mon-Fri 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/

Alix Elizabeth Echelmeyer

Application/Control Number: 10/634,651

Page 9

Art Unit: 1795

Supervisory Patent Examiner, Art Unit 1795

Examiner
Art Unit 1795

aee